WHAT IS CLAIMED IS:

1. Apparatus for introducing and distributing a charge including a metal oxide and solid fuel to a shaft furnace having a rectangular interior cross section for the production of molten metal from said metal oxide comprising:

means for feeding said charge to means for conveying said charge to said shaft furnace;

means for distributing said charge from said conveying means to said shaft furnace to form in said interior cross section of said shaft furnace a vertical column of said charge in a selected pattern of said metal oxide and solid fuel to maximize exchange of heat between ascending hot gas within said interior cross section of said shaft furnace and said vertical column of said charge.

2. The apparatus of claim 1, wherein said metal oxide includes self reducing agglomerates thereof.

3. The apparatus of claim 1, wherein said metal oxide includes self fluxing agglomerates thereof.

4. The apparatus of claim 1, wherein said metal oxide includes self reducing and self fluxing agglomerates thereof.

5. The apparatus of claim 1, wherein said vertical column of said charge comprises a longitudinal central portion of said solid fuel surrounded by a longitudinal portion of said metal oxide.

6. The apparatus of claim 5, wherein particles of said solid fuel are distributed within said longitudinal portion of said metal oxide to increase

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permeability thereof to improve flow of said ascending hot gas through said vertical column of said charge.

7. The apparatus of claim 1, wherein said conveying means includes an assembly of at least one hopper, at least one sealing valve and proportioning valve and at least one fixed tube.

8. The apparatus of claim 1, wherein more than one said assembly is provided.

9. The apparatus of claim 1, wherein said distributing means includes at least one movable tube journaled for movement along a single plane.

10. The apparatus of claim 1, wherein said distributing means includes at least one movable tube journaled for movement along two planes.

11. The apparatus of claim 1, wherein said distributing means includes at least one movable tube journaled for movement along a single plane and at least one other movable tube journaled for movement along two planes.

12. A method for distributing a charge including a metal oxide and solid fuel in a shaft furnace having a rectangular interior cross section, with the charge being used for the production of molten metal from the metal oxide of the charge, comprising:

forming in said interior cross section of said shaft furnace a vertical column of said charge;

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distributing said metal oxide and said solid fuel to produce a selected cross sectional pattern therefrom in said vertical column of said charge to maximize exchange of heat between ascending hot gas and said vertical column of said charge; and

continuing said distributing of said metal oxide and said solid fuel to maintain said selected cross sectional pattern during said production of said molten metal.

13. The method of claim 12, wherein said metal oxide includes self reducing agglomerates thereof.

14. The method of claim 13, wherein said metal oxide includes self fluxing agglomerates thereof.

15. The method of claim 12, wherein said metal oxide includes self reducing and self fluxing agglomerates thereof.

16. The method of claim 12, wherein said pattern comprises a central portion of said solid fuel surrounded by an outer portion of said metal oxide.

17. The method of claim 16, wherein particles of said solid fuel are distributed within said outer portion of said metal oxide to increase permeability thereof to improve flow of said ascending hot gas through said vertical column of said charge.

ABSTRACT OF THE DISCLOSURE

The present invention refers to an equipment for feeding and distributing charge and fuel in furnaces of rectangular cross section, comprising movable feeding tubes to distribute along the longitudinal section and the cross section of the furnace, both a charge comprised of self-reducing agglomerates, ore, scrap or any other metallic material, and solid fuels of any kind.

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